

ABSTRACT

A Master Oscillator (MO) - Power Amplifier (PA) configuration (MOPA) can be used advantageously in an excimer laser system for micro-lithography applications, where semiconductor manufacturers demand powers of 40 W or more in order to support the throughput requirements of advanced lithography scanner systems. The timing of discharges in discharge chambers of the MO and PA can be precisely controlled using a common pulser to drive the respective chambers. The timing of the discharges further can be controlled through the timing of the pre-ionization in the chambers, or through control of the reset current in the final compression stages of the pulser. A common pulser, or separate pulser circuits, also can be actively controlled in time using a feedback loop, with precision timing being achieved through control of the pre-ionization in each individual discharge chamber. Yet another system provides for real-time compensation of time delay jitter of discharge pulses in the chambers.

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